Transmitters 1 and 2 can be Set-Up to perform T1, Fractional T1, or Channelized testing.

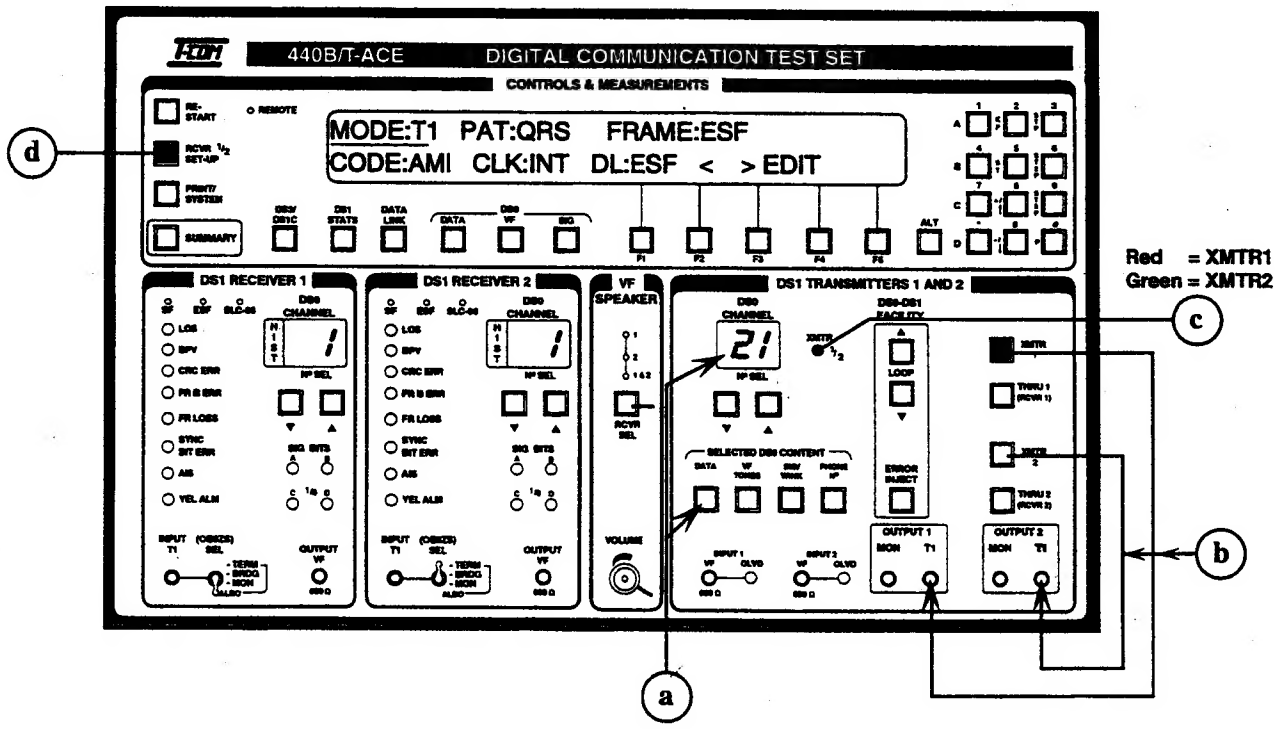
Both transmitters are always on , but the front panel function keys only apply to one transmitter at a time. Pressing **XMTR 1** or **XMTR 2 (b)** function key determines which transmitter (and output) is being Set-Up or changed.

In the picture below **XMTR 1** function key is on, therefore, all front panel transmitter keys currently apply to **OUTPUT 1**. The **DATA** function key (a) is on, indicating that a DS0A/B signal is being transmitted into DS0 channel #21. In order to access individual channels, and set up DS0 channel tests (DS0A/B Data, VF tones, Signaling, and Wink), the XMTR Set-Up MODE must be CHANNELIZED.

NOTES:

- The OUTPUT jack labeled **T1** is 0 dBDSX level while the MON output is at -20dBDSX level. Generally, use the **T1** output.
- THRU keys are used for Drop-and-Insert testing. Pressing **THRU 1** automatically passes the Receiver 1 DS1 signal thru Transmitter 1 OUTPUT (THRU 2 passes RCVR 2).
- the LED labeled XMTR 1/2 (c) provides additional confirmation of which transmitter output is being changed. The LED is Red to indicate XMTR 1 and Green to indicate XMTR 2. (The front panel is color coded to provide additional reinforcement)
- Receiver Set-Up (d) should generally be LOCKED TO XMTR
- DS0 related function keys (a) apply only when XMTR MODE is set to CHANNELIZED.

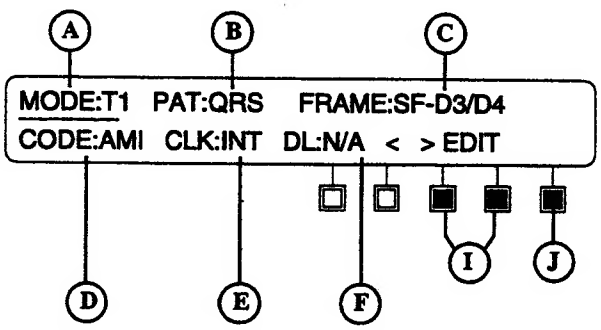
Refer to the XMTR FLOW CHART in Flow Charts/Appendices section for the complete menu hierarchy.



Interpreting Transmitter Set-Up screen:

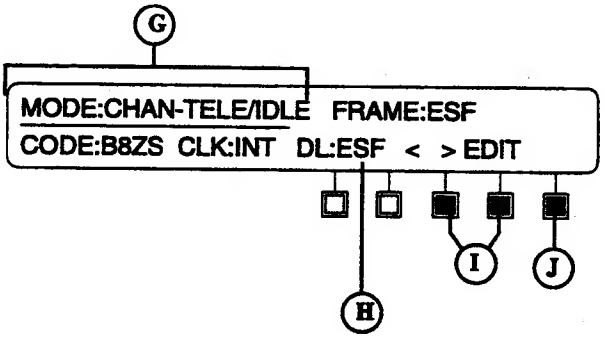
Press XMTR 1 (or XMTR 2) key to display root menu screen.
(If the screen below is not displayed, press the XMTR key a second time)

example #1



A. Transmitter is Set-Up for T1 testing.
B. Stress pattern (PAT) is set for QRS.
C. Frame type is set for SuperFrame, D3/D4 channel sequencing.
D. Line CODE is set to AMI.
E. Transmitter CLOCK set to internal (INT).
F. Data Link is Not Applicable (N/A) in SF Frame format.

example #2



G. Transmitter MODE must be Channelized in order to insert/test individual DS0 channels. CHAN-DATA/IDLE means the current Set-Up is Channelized, with DATA inserted on the selected DS0 Channel, and IDLE on the other 23 channels.
H. T1 Facilities Data Link (DL) is set for Extended Super Frame (ESF). Transmitter can be instructed to send Data Link messages.

Operation:

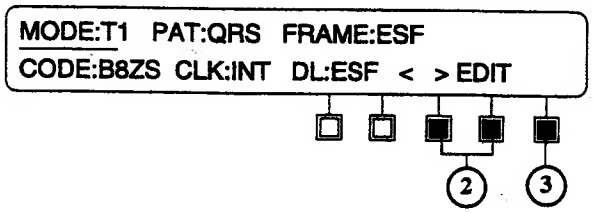
I. Use < > softkeys to underline parameter.
J. Press EDIT softkey to change setting of the parameter currently underlined.

TRANSMITTER SET-UP

The opening XMTR (transmitter) screen provides a comprehensive look at the current DS1 output. (Refer to the XMTR Flow Chart for a condensed menu-tree)

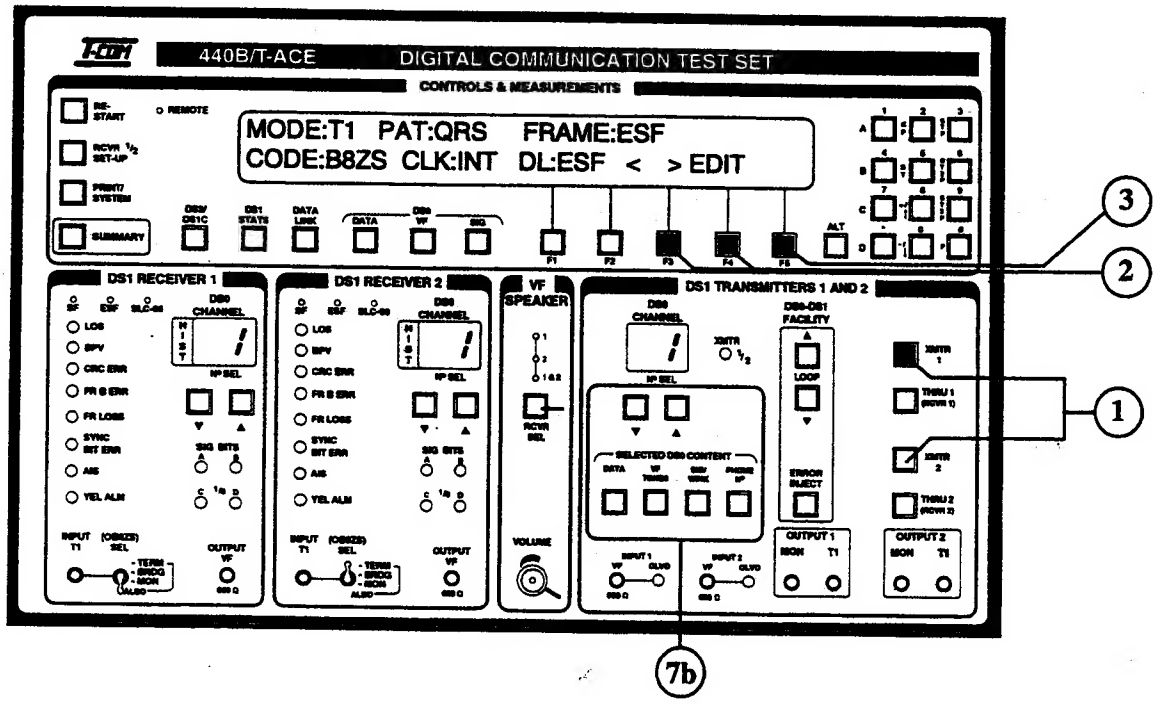
1. Press the XMTR 1 (or XMTR 2) key to display the root transmitter SET-UP screen below.

   If the above screen is not displayed, press the XMTR 1 key a second time.)



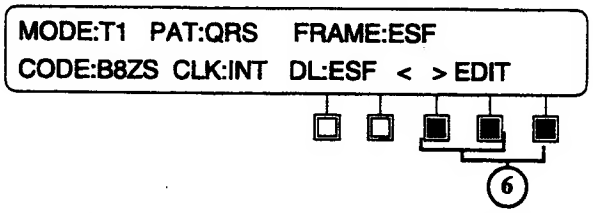
2. Use the < > softkeys (F3 and F4) to underline the parameter to be changed.
3. Use the EDIT softkey (F5) to display the menu choices for the parameter underlined.
4. Press XMTR 1 key to display the root SET-UP screen again.

Steps 5 - 22 show screens for MODE, PATTERN, LINE CODE, CLOCK SOURCE, and FRAMING.

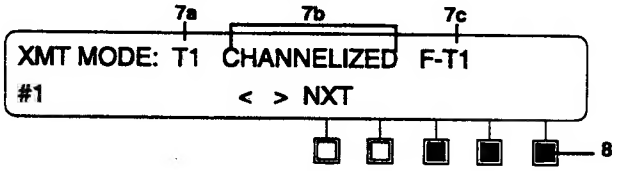


TO CHANGE MODE BETWEEN T1/F-T1/DSO CHANNELIZED

5. Press XMTR 1 (or XMTR 2) to display the root SET-UP screen. (If the screen below does not appear, press the XMTR key a second time.)

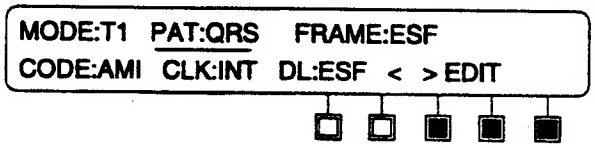


6. Use the < > softkeys (F3, F4) to choose MODE. Press EDIT (F5) softkey to display menu choices:
7. Use the < > softkeys to underline choice.
   a) T1 is for standard T1 stress testing.
   b) Channelized Mode is required for transmitting VF tones, DATA, Phone Numbers and Wink in specific channel using Selected DS0 CONTENT keys and DS0 channel selection (b). The DS1 OUTPUT will be in a Channelized format (24 DS0 Channels). See step 29.
   c) For instructions on F-T1 see Fractional T1 set-up in step 24.

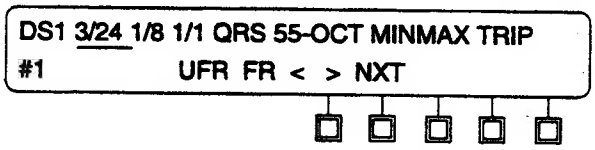


TO CHANGE T1 STRESS PATTERNS (requires setting MODE to T1)

9. Press XMTR 1 (or XMTR 2) to display the root screen. ***(If the screen below does not appear, press the XMTR key a second time.)***
10. Use < > softkeys (F3, F4) to choose PATtern (currently QRS in screen below).



11. Press the Edit softkey (F5) to display the pattern menu choices:



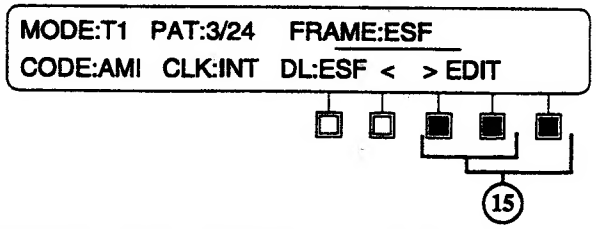
12. Use the < > softkeys (F3 & F4) to underline the pattern choice (for example 3/24) and UFR & FR (F1 & F2) softkeys to make the Unframed/Framed selection.

If the desired pattern is not found on this screen:

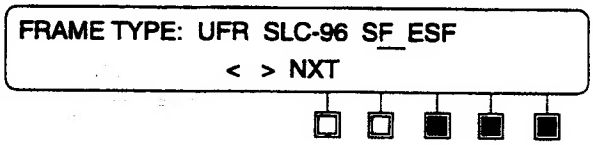
13. Use the NXT softkey to scroll through additional pages of pattern choices. The NXT softkey will return the display to the Root SET-UP screen at the end of pattern choices. ***Press the XMTR key to return directly to the Root SET-UP screem and confirm the changes.***

TO CHANGE FRAMING BETWEEN SF/ESF/SLC-96/UNFRAMED

14. Press the XMTR 1 (or XMTR 2) key to display the Root SET-UP screen. ***(If the screen below does not appear, press the XMTR key a second time.)***



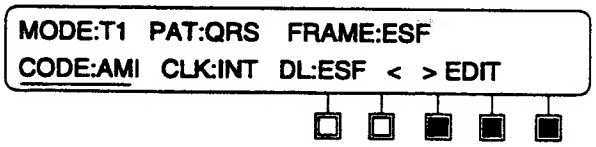
15. Use the < > softkeys (F3 & F4) to underline FRAME:, press EDIT to display menu choices:



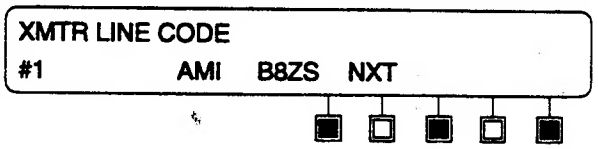
16. Use the < > (F3 & F4) to choose the frame type, for example SF. ***Press the NXT softkey or press the XMTR key (14) to return to the Root SETUP screen and confirm the changes.***

TO CHANGE LINE CODE BETWEEN AMI & B8ZS

17. Press the XMTR 1 (or XMTR 2) key to display the Root SET-UP screen. (If the screen below does not appear, press the XMTR key a second time.)



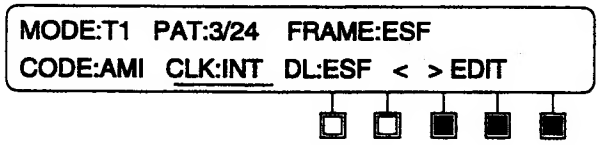
18. Use the < > softkeys (F3 & F4) to underline CODE:, press EDIT to display the menu choices:



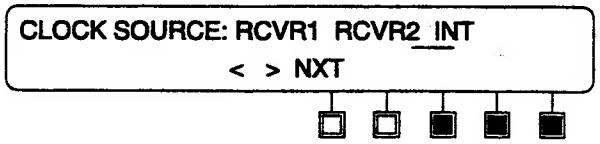
19. Use the < > (F3 & F4) to choose the LINE CODE, for example B8ZS. Press the NXT softkey or press the XMTR key (22) to return to the Root SETUP screen and confirm the changes.

TO CHANGE CLOCK SOURCE BETWEEN RCVR1/RCVR2/INT

20. Press the XMTR 1 (or XMTR 2) key to display the Root SET-UP screen. (If the screen below does not appear, press the XMTR key a second time.)



21. a) Use the < > softkeys (F3 & F4) to underline CLK:, press EDIT to display the menu choices:

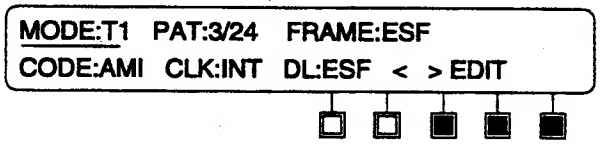


b) Use the < > (F3 & F4) to choose CLOCK SOURCE (generally INTernal). Press the NXT softkey or press the XMTR key (20) to return to the Root SETUP screen and confirm the changes.

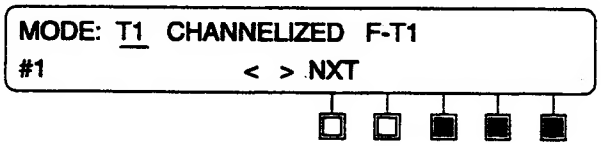
Setting Up Fractional T1 testing

It is generally much easier to set up a Fractional T1 test from the transmitters, and verify that the receiver is LOCKED TO XMTR. This will avoid any mistakes in channel "mapping" between the receivers and transmitters.

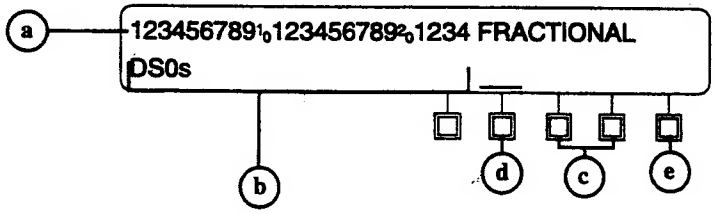
22. Press the XMTR key to display the opening screen:



23. Underline MODE and press EDIT to display the menu:

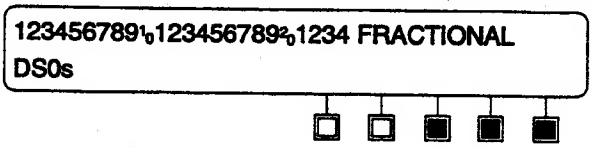


24. Underline F-T1 and press the NXT to display the DS0 channel map. The top numbers represent channels 1-24. A 1 under the channel number indentifies an active selection of this channel as part of the "Fractional T1"

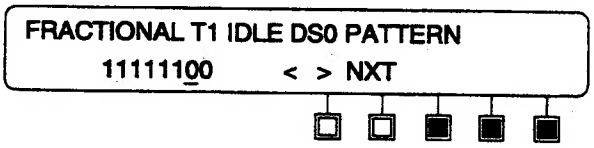


a) The top row represents channels 1-24.
b) A 1 under channels 1,2,3 mean that the Fractional T1 is composed of those three DS0 channels. A 0 represents the IDLE channels.
c) Use the < > and keypad to enter 1 or 0 in the desired channels.
d) Use the softkey F2 to toggle between 64Kb/s or 56Kb/s
e) Press NXT to define the Idle channels content.

25. Use the < > softkeys to underline channel locations, and the keypad to enter 1 or 0 for the desired channels. for example in the screen below, we have selected channels 1, 3, and 5 at 64Kb/s rates (these are non-contiguous)

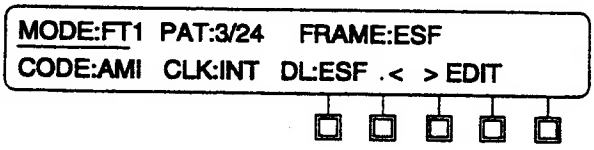


26. Press NXT to display the IDLE channel content screen. Use the < > softkeys and the keypad to enter 1 or 0.



NOTE: The IDLE channel byte programmed above will be entered into each unselected (0) channel in step 25. If the transmitter and receivers are configured for Drop-and-Insert (THRU) the IDLE channels will simply pass thru as uninterrupted live traffic.

27. Press NXT to return to the main XMTR Set-Up screen:

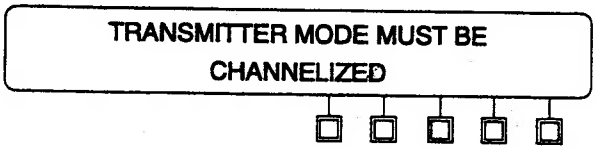


28. The new XMTR Set-Up screen shows that the 511 stress pattern is being transmitted across the F-T1 channels selected in step 25.

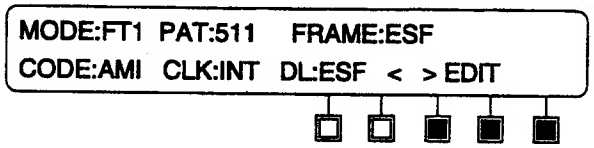
Setting Up Channelized Testing

The 440B can test Data, Voice, and signaling in individual DS0 channels. In order to insert into an individual channel, the transmitter MODE must first be channelized. It is sometimes important to set the condition of the remaining 23 DS0 channels. The following steps show how to send either a tone or idle condition in the "other 23" channels.

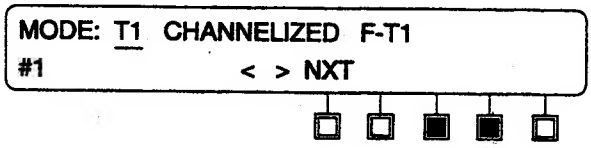
Pressing the DS0 transmit keys may display the message below. This is a reminder that the XMTR is not set-up for CHANNELIZED pattern format.



29. Press the XMTR key to display the opening screen:



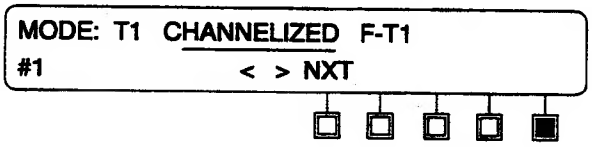
30. Underline MODE and press EDIT to display the menu:



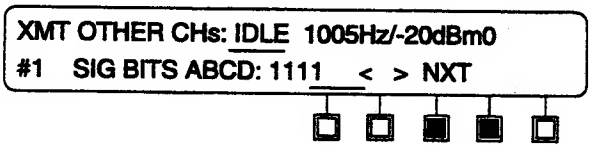
31. Use the < > softkeys to underline CHANNELIZED. The bit stream delivered by the XMTR is now channelized, and the individual DS0 transmit keys can be used to insert Data, VF, Signaling, Wink and Phone numbers into the selected DS0 channel. (See Quick Sheet 5A.)

    The remaining 23 channels are defined in step 32.

Setting the content of the "other" 23 channels



32. Press NXT to display the screen below:



33. Use the < > softkeys to choose either IDLE or 1005Hz/-20dBm0 tone. If the 1005Hz/-20dBm0 tone is chosen it will be inserted into each of the "other" 23 channels.

Highlights of Channelized Testing

A) Select the individual DS0 Channel number (1-24) and choose the content (DATA, VF TONES, Signaling/Wink, Phone Numbers).

B) XMTR Set-Up must be Channelized. Select the content of "other" 23 channels (see step 32) if necessary.

C) Pressing the THRU key automatically sets the XMTR in the "Channelized" mode. The "other" 23 channels are passed thru from the Receiver for Drop-and-Insert testing. **(See Drop-and-Insert, Quick Sheet 12.)**